【Claims】

【Claim 1】

A bottle, comprising:

a bottle body which has a mouth provided with an external thread around an outer circumferential surface thereof;

an additive storage container that is open at both ends thereof and is provided with an insertion part inserted into the mouth of the bottle body and an exposed part externally exposed out of the mouth, and defines an additive storage space therein;

an opening unit that engages with the external thread of the mouth through a screw-type engagement and is selectively isolated from or communicated with a material storage space of the bottle body; and

separation means for removing the additive storage container from the mouth of the bottle body.

【Claim 2】

The bottle according to claim 1, wherein the separation means comprises:

an elevating protrusion projecting externally in a radial direction from an intermediate portion of the outer circumferential surface of the additive storage container, so

that the elevating protrusion engages and becomes locked with an internal thread provided on an inner circumferential surface of the opening unit.

【Claim 3】

The bottle according to claim 1 or 2, further comprising: a valve seat extending inward in a radial direction from a lower end of the insertion part of the additive storage container, with a discharge port formed at a center of the valve seat; a support shaft extending downward from a center of a lower surface of the opening unit in an axial direction; and a valve body provided at an end of the support shaft to close the discharge port, so that the additive storage space is isolated from the material storage space of the bottle body.

【Claim 4】

The bottle according to claim 3, wherein the opening unit is provided with a cylindrical inside wall that extends downward in the axial direction at a position spaced apart from an outside wall of the opening unit by a predetermined distance, so that an outer circumferential surface of the inside wall of the opening unit is in movable contact with an inner circumferential surface of the exposed part of the additive storage container.

【Claim 5】

The bottle according to claim 4, wherein the outside and inside walls of the opening unit have an outside injection hole and inside injection hole, respectively, on a same horizontal axis, and the exposed part of the additive storage container has a communication hole that connects the outside injection hole and inside injection hole together at a predetermined position when the opening unit is rotating.

【Claim 6】

The bottle according to claim 5, wherein the communication hole is configured as an elongate hole so that the outside injection hole and inside injection hole continue to communicate within an angular range having an angle larger than a predetermined angle when the opening unit is rotating.

【Claim 7】

The bottle according to claim 6, wherein the inner circumferential surface of the exposed part of the additive storage container has a step which has a first seal groove, so that a lower end of the inside wall of the opening unit is axially inserted into the first seal groove to a predetermined depth.

【Claim 8】

The bottle according to claim 7, further comprising: a second seal groove formed in the opening unit at a position outside the inside wall so that an upper end of the exposed part of the additive storage container is axially inserted into the second seal groove to a predetermined depth.

【Claim 9】

The bottle according to claim 1, wherein the mouth of the bottle body is formed through a double injection molding process in which a mouth piece is separately formed and then integrated with the mouth of the bottle body through injection molding.

【Claim 10】

A bottle, comprising:

a bottle body having a mouth with a ring-type stopper formed around an outer circumferential surface of the mouth;

an additive storage container provided with an insertion part inserted into the mouth of the bottle body and an exposed part externally exposed out of the mouth, and opened on an upper part thereof and provided with a discharge port at a lower part thereof, and defining an additive storage space therein; and

an opening unit having a sealing part to open or close the upper part of the exposed part of the additive storage

container, with a hook formed at an end of an outer circumferential surface of the sealing part and locked to the stopper of the mouth, and a valve body projecting in the sealing part and selectively isolating or communicating the additive storage space from or with a material storage space of the bottle body.

【Claim 11】

The bottle according to claim 10, wherein the sealing part of the opening unit has a finger holding part extending outward from the sealing part in a radial direction.

【Claim 12】

A bottle, comprising:

a bottle body comprising a mouth on an upper part thereof, a communication hole formed on a sealed lower wall thereof, and an extension wall which extends downward from the lower wall and has a locking groove around an outer circumferential surface thereof;

an additive storage container having a cylindrical shape and being opened at a side wall thereof, with an external thread provided around an outer circumferential surface of the additive storage container so that the container slides into the extension wall, and a valve body to open or close the communication hole; and

an opening unit rotatably coupled to the extension wall of the bottle body and surrounding the additive storage container, and moving the additive storage container in an axial direction when rotating.

【Claim 13】

The bottle according to claim 12, wherein the opening unit is provided on an open end thereof with a locking protrusion that movably engages with the locking groove of the extension wall, and provided on an inner surface thereof with an internal thread that engages with the external thread of the additive storage container and moves the additive storage container in the axial direction.

【Claim 14】

A bottle, comprising:

a bottle body having a mouth having an external thread around an outer circumferential surface thereof and defining a material storage space therein;

an additive storage container inserted into the mouth, and having an elevation protrusion on an outer circumferential surface thereof, and defining therein a plurality of additive storage spaces that selectively communicate with the material storage space of the bottle body; and

an opening unit that comprises an outside wall engaging with the external thread of the mouth through a screw-type engagement, an inside wall inserted into the additive storage container, and a partition wall dividing the additive storage space into two isolated spaces.

【Claim 15】

The bottle according to claim 14, wherein a plurality of discharge ports are formed on the lower part of the additive storage container, with a lower surface of the additive storage container gradually protruding upward to form a convex shape.

【Claim 16】

The bottle according to claim 15, wherein a seal piece is provided on the lower surface at a position corresponding to each of the inside wall and the partition wall.

【Claim 17】

The bottle according to claim 16, wherein the opening unit is provided with a seal groove into which the top end of the additive storage container is inserted.

【Claim 18】

The bottle according to claim 17, wherein the outside and inside walls of the opening unit have an outside

injection hole and an inside injection hole, respectively, to correspond to the additive storage spaces, and the additive storage container has a communication hole that connects the outside injection hole and the inside injection hole together along a same horizontal axis at a predetermined position so that the additive storage spaces communicate with the atmosphere.

【Claim 19】

A bottle, comprising:

a bottle body having a mouth with an external thread formed around an outer circumferential surface of the mouth;

an additive storage container inserted into the mouth, and having a cylindrical additive storage part opened at an upper end thereof and provided with a discharge port at a lower end thereof; and

an opening unit having an end plate being in surface contact with the open end of the additive storage part, a main cap extending downward in an axial direction from an outer circumferential edge of the end plate and having an internal thread engaging with the external thread of the mouth through a screw-type engagement, and a slider extending downward in an axial direction from an inner circumferential edge of the end plate and movably inserted into the additive

storage part, thus selectively opening or closing the discharge port.

【Claim 20】

The bottle according to claim 19, wherein the open end of the additive storage part is integrally provided with a flange that has an outside protrusion extending outward in a radial direction from the additive storage part, the outer circumferential surface of the additive storage part is provided at a predetermined position spaced apart from the flange by a predetermined distance with an external thread that has a same pitch as that of the external thread of the mouth, and the main cap is provided at a predetermined position inside the internally threaded portion with an outside hooking protrusion that engages with the external thread of the additive storage part through a screw-type engagement and is hooked by the outside protrusion, the outside hooking protrusion projecting inward from the main cap in a radial direction, so that, when the opening unit is rotated, the outside hooking protrusion is hooked by the outside protrusion, thus removing the additive storage part from the mouth.

【Claim 21】

The bottle according to claim 20, wherein the additive storage part has an internal ratchet around a circumference of a root close to the flange, and an end of the outside hooking protrusion is provided with an external ratchet that is allowed to rotate only in one direction relative to the internal ratchet.

【Claim 22】

The bottle according to claim 21, wherein the flange further comprises another flange that has an inside protrusion extending inward in a radial direction, and an inside hooking protrusion to be hooked by the inside protrusion projects outward from the outer circumferential surface of the slider in a radial direction at a position corresponding to the outside hooking protrusion so that, when the opening unit is rotating, the inside hooking protrusion is hooked by the inside protrusion, thus removing the additive storage container from the mouth.

【Claim 23】

The bottle according to claim 22, wherein the outer circumferential edge of the end plate is integrally formed with an upper cap that closes the upper part of the slider.

【Claim 24】

The bottle according to claim 23, wherein the end plate is provided with at least one communication hole that is opened or closed by the flange.

【Claim 25】

The bottle according to any one of claims 19 through 24, wherein the outer circumferential surface of the additive storage part is provided with a plurality of sealing protrusions that are in contact with the inside surface of the mouth, thus maintaining a sealed state between the additive storage part and the mouth.

【Claim 26】

The bottle according to claim 25, wherein the lower surface of the additive storage container gradually protrudes upward to form a convex shape.

【Claim 27】

The bottle according to claim 26, wherein a seal piece is inserted into the lower surface of the additive storage container at a position where the lower surface contacts the end of the slider.

【Claim 28】

The bottle according to claim 22, wherein an extension part is formed in an axial direction around the outer

circumferential edge of the end plate, with an upper cap selectively combined to the extension part.

【Claim 29】

The bottle according to claim 28, wherein a partition wall integrally projects upward from the lower surface of the additive storage container and divides the additive storage part into two parts, and the upper cap is provided with an insertion groove into which an upper end of the partition wall is inserted.

【Claim 30】

The bottle according to claim 28 or 29, wherein the upper cap is integrally connected to the main cap by a connection rib.

【Claim 31】

The bottle according to claim 28, wherein the extension part is provided with an external thread which has a same pitch as that of the external thread of the mouth, and a sports cap having an internal thread is combined to the external thread of the extension part through a screw-type engagement.

【Claim 32】

A bottle, comprising:

a bottle body having a mouth with an external thread formed around an outer circumferential surface of the mouth;

an additive storage container inserted into the mouth, and having a cylindrical additive storage part having an open upper end and provided at a lower end thereof with a bursting part that is formed by a tear-off line; and

an opening unit having an end plate being in surface contact with the open upper end of the additive storage part, a main cap extending downward in an axial direction from an outer circumferential edge of the end plate and having an internal thread combined to the mouth through a screw-type engagement, and a slider extending downward in an axial direction from an inner circumferential edge of the end plate and movably inserted into the additive storage part, and provided at a lower end thereof with a blade to cut the tear-off line.

【Claim 33】

The bottle according to claim 32, wherein the open upper end of the additive storage part is integrally provided with a flange that has an outside protrusion extending outward in a radial direction from the additive storage part, the outer circumferential surface of the additive storage part is provided at a position spaced apart from the flange by a predetermined distance with an external thread that has

a same pitch as that of the external thread of the mouth, and the main cap is provided at a predetermined position inside the internally threaded portion with an outside hooking protrusion that engages with the external thread of the additive storage part through by a screw-type engagement and is hooked by the outside protrusion, the outside hooking protrusion projecting inward from the main cap in a radial direction, so that, when the opening unit is rotated, the outside hooking protrusion is hooked by the outside protrusion, thus removing the additive storage part from the mouth.

【Claim 34】

The bottle according to claim 33, wherein the flange further comprises an inside protrusion extending therefrom inward in a radial direction, and an inside hooking protrusion to be hooked by the inside protrusion projects outward from the outer circumferential surface of the slider in a radial direction at a position corresponding to the outside hooking protrusion so that, when the opening unit is rotating, the inside hooking protrusion is hooked by the inside protrusion, thus removing the additive storage container from the mouth.

【Claim 35】

The bottle according to claim 34, wherein the end plate is provided with at least one communication hole that is opened or closed by the flange.

【Claim 36】

The bottle according to claim 34, wherein an extension part is formed in an axial direction around the outer circumferential edge of the end plate, with an upper cap selectively combined to the extension part.

【Claim 37】

The bottle according to claim 36, wherein the upper cap is integrally connected to the main cap by a connection rib.

【Claim 38】

The bottle according to claim 37, wherein the upper cap is provided on an inner surface thereof with a plurality of seal protrusions spaced out at predetermined intervals, and the extension part is integrally provided with a seal ring that is inserted into the seal protrusions.

【Claim 39】

The bottle according to claim 34, wherein the extension part is provided with an external thread which has a same pitch as that of the external thread of the mouth, and

a sports cap having an internal thread is combined to the external thread of the extension part through a screw-type engagement.

【Claim 40】

A bottle, comprising:

a bottle body having a mouth with an external thread formed around an outer circumferential surface of the mouth;

an additive storage container having a cylindrical additive storage part having an open upper end and provided with a discharge port at a lower end thereof, a cutting protrusion protruding in an axial direction from a lower end of the additive storage part and a hook integrally provided at a side of the discharge port;

an opening unit having an end plate being in surface contact with the open upper end of the additive storage part, a main cap extending downward in an axial direction from an outer circumferential edge of the end plate and having an internal thread combined to the mouth through a screw-type engagement, a slider extending downward in an axial direction from an inner circumferential edge of the end plate and movably inserted into the additive storage part, and a bursting part provided on a lower part of the slider and having a hook ring which is hooked by the hook; and

separation means composed of a fixed ratchet formed as a ring shape on an inner surface of the open upper end of the additive storage container and a movable ratchet that is formed on an outer surface of the slider and interferes with the fixed ratchet at a predetermined position when the opening unit is released from the mouth.

【Claim 41】

The bottle according to claim 40, wherein the fixed ratchet and movable ratchet are in surface contact with each other in an axial direction so that the fixed and movable ratchets are limited in rotation thereof when the opening unit is rotated to be released.

【Claim 42】

The bottle according to claim 41, wherein the fixed and movable ratchets are inclined on rear surfaces thereof, thus allowing the slider to be inserted into the additive storage container.

【Claim 43】

A bottle, comprising:

a bottle body having a mouth with an external thread formed around an outer circumferential surface of the mouth;

an additive storage container having a cylindrical additive storage part having an open upper end and provided with a discharge port at a lower end thereof, and a plurality of cutting tips provided around the discharge port in an axial direction;

an opening unit having an end plate being in surface contact with the open upper end of the additive storage part, a main cap extending downward in an axial direction from an outer circumferential edge of the end plate and having an internal thread combined to the mouth through a screw-type engagement, a slider extending downward in an axial direction from an inner circumferential edge of the end plate and movably inserted into the additive storage part, and a bursting part provided on a lower part of the slider to be cut by the cutting tips; and

separation means comprising a fixed ratchet formed as a ring shape around the open upper end of the additive storage container and a movable ratchet formed on an inner surface of the end plate of the additive storage container at a position corresponding to the fixed ratchet, so that the movable ratchet is rotated in one direction relative to the fixed ratchet.

【Claim 44】

A bottle, comprising:

a bottle body having a mouth with an external thread formed around an outer circumferential surface of the mouth;

an additive storage container having a cylindrical additive storage part an open upper end and provided with a discharge port at a lower end thereof, and a plurality of cutting tips provided around the discharge port in axial directions;

an opening unit having an end plate being in surface contact with the open upper end of the additive storage part, a main cap extending downward in an axial direction from an outer circumferential edge of the end plate and having an internal thread combined to the mouth through a screw-type engagement, a slider extending downward in an axial direction from an inner circumferential edge of the end plate and movably inserted into the additive storage part, and a bursting part provided on a lower part of the slider to be cut by the cutting tips; and

separation means comprising a fixed ratchet formed as a ring shape around the discharge port of the additive storage container and a movable ratchet formed on a lower end of the slider of the opening unit at a position corresponding to the fixed ratchet, thus being allowed to be rotated in one direction relative to the fixed ratchet.

【Claim 45】

The bottle according to claim 43 or 44, wherein an inner circumferential surface of the open upper end of the additive storage container is provided with a seal protrusion that is in movable contact with an outer circumferential surface of the slider.

【Claim 46】

A bottle, comprising:

a bottle body having a mouth with an external thread formed around an outer circumferential surface of the mouth;

an additive storage container having an end plate being in surface contact with an open end of the mouth, a main cap extending in an axial direction from an outer circumferential edge of the end plate and having an internal thread engaging with the external thread of the mouth through a screw-type engagement, an inner cap extending in an axial direction from an inner circumferential edge of the end plate and movably inserted into the mouth, with a bursting part provided at a lower part of the inner cap;

an opening unit comprising a finish plate provided on an upper part of the inner cap, an upper cap extending in an axial direction from an outer circumferential edge of the finish plate and having an internal thread engaging with an outer circumferential surface of the inner cap, and a slider extending downward in an axial direction from the end plate

and movably inserted into the additive storage container in an axial direction, with a cutting edge provided at a lower end of the slider to tear off the bursting part; and

a fixed band provided on a lower part of the opening unit such that the fixed band is cut and limits downward movement of the opening unit.

【Claim 47】

The bottle according to claim 46, wherein the bursting part has a thin circumferential edge at which the bursting part is firmly connected to the inner cap by a holder.

【Claim 48】

The bottle according to claim 47, wherein the slider is provided on an inner surface thereof with a stirring protrusion that is formed along a length of the slider and internally projects in a radial direction.

【Claim 49】

The bottle according to any one of claims 46 through 48, wherein the slider is integrally provided therein with at least one stirring rod internally projecting in a radial direction.

【Claim 50】

A bottle, comprising:

a bottle body having a mouth with an external thread formed around an outer circumferential surface of the mouth;

an additive storage container having an end plate being in surface contact with an open end of the mouth, a main cap extending downward in an axial direction from an outer circumferential edge of the end plate and having an internal thread combined to the mouth through a screw-type engagement, an inner cap extending in an axial direction from an inner circumferential edge of the end plate and being movably inserted into the mouth, with a discharge port and a hook protrusion provided on an end of the inner cap; and

an opening unit comprising a finish plate provided on an upper part of the inner cap, an upper cap extending in an axial direction from an outer circumferential edge of the finish plate and having an internal thread combined to the outer circumferential surface of the main cap, and a slider extending in an axial direction from the end plate and movably inserted into the additive storage container in an axial direction, and sealed by a plug at an end thereof.

【Claim 51】

The bottle according to claim 50, wherein the plug is integrally provided at a lower end thereof with a hook that is hooked by the hook protrusion, so that the hook is allowed

to engage with the hook protrusion and is then prevented from being separated from the hook protrusion.

【Claim 52】

The bottle according to claim 51, wherein the plug has a seal protrusion that is combined to a seal groove formed on a lower end of the slider so that the plug is coupled to the slider to be separated from the slider.

【Claim 53】

The bottle according to claim 52, wherein the plug is integrally formed on a lower end of the slider, with a thin tear-off line formed between the plug and the slider.

【Claim 54】

The bottle according to claim 53, wherein the tear-off line is an inclined line.

【Claim 55】

The bottle according to claim 53, wherein an upper part of the outer circumferential surface of the plug is provided with a locking groove that engages with a locking protrusion that projects inward from an inner surface of the slider, so that the plug is coupled to the slider to be separated from the slider.

【Claim 56】

The bottle according to claim 55, wherein a seal ring is provided between the plug and the slider.

【Claim 57】

The bottle according to claim 56, wherein an interference protrusion is provided between the slider and the inner cap so that, when the slider and inner cap are moving relative to each other in axial directions, a sealed state between the slider and inner cap is maintained and a click sound is generated.

【Claim 58】

The bottle according to claim 57, wherein the finish plate is provided with a sound port that emits the click sound generated from the interference protrusion to the atmosphere.

【Claim 59】

A bottle, comprising:

a bottle body having a mouth with an external thread formed around an outer circumferential surface of the mouth;

an additive storage container having an end plate being in surface contact with an open end of the mouth, an inner cap extending downward in an axial direction from an

inner circumferential edge of the end plate and movably inserted into the mouth in an axial direction, with a discharge port provided at an end of the inner cap, and an external thread that protrudes outward from an outer circumferential edge of the end plate in a radial direction to be continuous with the external thread of the mouth;

an opening unit comprising a finish plate provided on an upper part of the inner cap, an upper cap extending downward in an axial direction from an outer circumferential edge of the finish plate and having an internal thread engaging with the external threads of both the mouth and the end plate at the same time, and a slider extending in an axial direction from the finish plate and movably inserted into the additive storage container in an axial direction, with a discharge port provided at a lower part of the slider; and

a bursting film that covers a lower end of the additive storage container and seals a gap between the slider and the inner cap.

【Claim 60】

The bottle according to claim 59, wherein the lower part of the slider is provided with a wedge that prevents the additive storage container from rising higher than a predetermined position relative to the opening unit.

【Claim 61】

The bottle according to claim 60, wherein an upper end surface of the mouth is provided with a lower ratchet and a lower surface of the additive storage container corresponding to the upper end surface of the mouth is provided with an upper ratchet, so that the additive storage container is allowed to rotate in one direction relative to the mouth.

【Claim 62】

The bottle according to claim 61, wherein an upper part of the additive storage container is provided with a lower ratchet piece, and a lower surface of the opening unit corresponding to the upper part of the additive storage container is provided with an upper ratchet piece that is allowed to rotate in one direction relative to the lower ratchet piece, so that rotational force of the opening unit is transmitted to the additive storage container.

【Claim 63】

The bottle according to claim 62, wherein ring-shaped seal protrusions are provided around an outer circumferential surface of the slider at positions above and below the discharge port.

【Claim 64】

The bottle according to any one of claims 59 through 63, wherein the slider is provided therein with a partition wall that divides an additive storage space into two parts, with a discharge port and an open port formed on the two divided parts of the additive storage space.

【Claim 65】

The bottle according to claim 64, wherein the finish plate is provided with at least one open port to supply the interior of the additive storage space with additive.

【Claim 66】

A bottle, comprising:

a bottle body having a mouth with an external thread formed around an outer circumferential surface of the mouth;

an additive storage container having an end plate being in surface contact with an open end of the mouth, a main cap extending in an axial direction from an outer circumferential edge of the end plate and having an internal thread engaging with the external thread of the mouth through a screw-type engagement, an inner cap extending in an axial direction from an inner circumferential edge of the end plate and movably inserted into the mouth, with a bursting part provided at a lower part of the inner cap;

an opening unit comprising a finish plate provided on an upper part of the inner cap, an upper cap extending in an axial direction from an outer circumferential edge of the finish plate and having an internal thread engaging with an outer circumferential surface of the inner cap, and a slider extending downward in an axial direction from the end plate and being movably inserted into the additive storage container in an axial direction, with a cutting edge provided at a lower end of the slider to tear off the bursting part; and

a fixed band provided on a lower part of the opening unit such that the fixed band is cut and limits downward movement of the opening unit.

【Claim 67】

The bottle according to claim 66, wherein the bursting part has a thin circumferential edge at which the bursting part is firmly connected to the inner cap by a holder.

【Claim 68】

The bottle according to claim 67, wherein the slider is provided on an inner surface thereof with a stirring protrusion that is formed along a length of the slider and internally projects in a radial direction.

【Claim 69】

The bottle according to any one of claims 66 through 68, wherein the slider is integrally provided therein with at least one stirring rod internally projecting in a radial direction.